PERISCOPE.

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ANATOMY OF THE NERVOUS SYSTEM.

ON THE MINUTE STRUCTURE OF THE CORPORA STRIATA AND THE OPTIC THALAMI. Dr. Vittorio Marchi, (Rivista Sperimentale di Frenatra e di Medicina Legale.

In an elaborate and exceedingly interesting paper on this subject, illustrated with some very fine plates, the writer reaches the following conclusions.

I. Two types of cells are found in the corpora striata, large and medium, which are furnished with numerous processes, one alone of which is distinguished by special characteristics and is the nervous process, the others correspond to protoplasmic processes.

II. The nervous processes comport themselves in two ways, one after a short distance from their origin, divides completely into a fine *rete nervosa* the other constitutes the axis cylinder of a fibre, not however, without first giving off a few delicate branches.

III. In the nucleus of the corpus striatum cells of both types are found ; this predominance, however, is less pronounced in the lenticular nucleus.

IV. In the optic thalamus, isolated groups of cells are not found, but they are scattered irregularly through the whole mass of the gray substance. The larger size prevail and are very similar to those of the anterior horns of the spinal cord. These, as in the corpora striata, show the single nervous process and the numerous protoplasmic processes.

V. Differing from the corpora striata, the first type of cell prevails in the optic thalami.

VI. Corresponding to the double manner of the disposition of the nervous processes, the fibres join themselves with the cells of the corpora striata and the optic thalami, either directly uniting with the nerve process of the cells of the first type, or indirectly losing themselves in the fine network formed from the nerve processes of the cells of the second type, together with the lateral branches emanating from the same prolongations from cells of the first type.

VII. The internal capsule contains fibres which directly unite the peduncles of the brain to the corona radiata. Others which leave the peduncles stop at the basal ganglia; others go from there to the corona radiata, others arising from the cells contained in the substance of the same capsule take ascending or descending direction.

VIII. With reference to the protoplasmic processes, setting aside those which form the rete nervosa, observation leads him to think that the finer ramifications stand in relation to the cells of the neuroglia and to the vessels.

IX. The neuroglia is essentially represented in cells having numerous long, fine processes which ramify many times, and by means of various expansions insert themselves in the walls of the vessels.

X. Finally, the ependima which covers the corpora striata and the internal surface of the optic thalami is composed of cylindrical conical cells, the thinner portion of which continues with a process which, after considerable ramification in most instances, is inserted into the vessels.

The writer deduces the following conclusions in regard to what he styles the much debated question of the functions of the basal ganglia. From the fact that the two types of cells prevail in both the corpora striata and the optic thalami, he argues that they have mixed functions of motion and of sensation; but as in the corpora striata the cells with numerous processes corresponding to the multipolar cells of the posterior horns of the spinal cord, therefore the corpora striata pertains mostly to sensation; while in the optic thalami the cells corresponding to those found in the anterior horn prevail. He finds in these experiments

a corroboration of the law formulated by Golgi, that in all parts of the central nervous system, the specific function, whatever may be its nature, ought to be effected not by the isolated or individual action of its single ganglionic elements, but by the conjoined action of extensive groups of cells.

It may be well to add the method of preparation which was employed to obtain the fine results in staining shown in the plates. The specimen is best taken from young animals, must be carefully and well-hardened. Before taking out the brain, he makes repeated injections of a two per cent. solution of bichromate of potassium into the carotid artery. This makes the hardening more even. After this he cuts the brain into pieces and leaves them in Müller's fluid for twenty-four hours, after which he makes sections with a razor into smaller pieces of a cubic centimeter. These he puts again into Müller's fluid, leaving them at an ordinary temperature for eight or ten days ; if it is cold it is necessary to leave them for a longer time. He then places them in a solution of about eight parts of Müller's fluid and two parts of a solution of one per cent. of osmic acid. This mixture accelerates the hardening. The fluid should be abundant and clear, and contain only a few pieces. After twenty-four hours they should be placed directly into a solution of sixty per cent. nitrate of silver, which should be changed after about half-an-hour, because of the precipitate which it forms. In this last solution it is necessary that the pieces remain at least twenty-four or forty-eight hours, longer will not cause any alteration. The sections should then be made, after which they are washed in common alcohol, then passed directly into creosote and left until they have acquired an evident transparency. Then wash them a number of times in turpentine, leaving them for twenty minutes, after which mount in Canada balsam without covering.

PHYSIOLOGY OF THE NERVOUS SYSTEM.

TRAUMATIC CORTICAL HEMIEPILEPSY. Dr. E. Houzé (Bulletin de la Société de Médicine Mentale, 1884, p. 48).

Patient, male, æt. 22, entered hospital February 5th,